

LEAD BY EXAMPLE

Mosquito Magnets

The City is undertaking a demonstration project, installing 2 Mosquito Magnets at Truxtun Park this summer. Mosquito Magnets are a way to reduce the mosquito population in a localized area without the use of pesticides or other chemicals. They are insect traps that create a harmless plume of carbon dioxide, moisture and heat that attract blood-seeking insects. Once the insects follow the plume to the source, they're drawn inside by a powerful vacuum where they dehydrate and die. Only female blood-sucking insects such as mosquitos, no-see-ums, black flies, and sand-flies are captured by the Mosquito Magnets.



Purple Martins

The City of Annapolis has 3 Purple Martin houses mounted. This highly social, popular bird returns from South America every spring. While a debate exists whether or not it lives up to its reputation for eating mosquitoes, it does eat flies, bees, wasps, flying ants, and Japanese beetles.

A finicky bird, the Purple Martin prefers "condos", with no less than 8 rooms, and need a circle entrance, 2¼" or 2 ½" in diameter, to keep invading birds out. It may take a season or two to attract these birds; devotees swear by the results! With patience, and proper information, you just might convince a Purple Martin family to make a home with yours!

- ! Make sure that Purple Martin houses are up, and open, by early to mid-April
- ! Make sure that houses are white.
- ! Place houses on a telescoping pole 12' - 18' high
- ! Place birdhouses at least 40' from nearest tree, and within 130' of human habitation
- ! Monitor birdhouses regularly, and remove invading species

Use Biological Controls

- ! Add mosquito dunks that contain a mosquito larvae eating bacteria to water gardens, birdbaths, rain barrels, ponds, or any other water holding area. The dunks will not harm fish, vegetation, or animals
- ! Introduce mosquito larvae eating mosquito fish (*Gambusia* spp.) to ornamental ponds
- ! Create environments for mosquito predators, such as frogs, dragonflies, bats, and birds (purple martins)

Try Growing Mosquito Repellents

A number of natural essences are found in the garden and are as attractive to humans as they are repugnant to insects. Herbs, flowers and grasses contain oils that can be used as your yard's natural line of defense.

- ! Catnip contains an essential oil, Nepetalactone, which has been found to be effective at repelling mosquitoes. You can also brew catnip tea to apply as a spray for outdoor areas, patios and decks.
- ! Other herbs with oils that repel mosquitos and insects are rosemary and pennyroyal (disliked by fleas and ticks).
- ! Some flowers and ornamental grasses also work. Planting marigolds around your yard works as a natural bug repellent; the flowers give off a fragrance bugs and flying insects find offensive.
- ! Thai lemon grass (*Cymbopogon citratus*) is a natural, and very effective mosquito repellent. It contains the natural oil, citronella, which is safe and effective; in fact, lemon grass citronella is considered more effective than true citronella as an insect repellent. Thai lemon grass is usually available at garden centers. It grows readily into a decorative clump about 15" across and about two feet tall.



Integrated Mosquito Management Program



City of Annapolis Mayor Ellen Moyer

Department of Public Works
Margaret B. Martin, Director
410-263-7949
pubworks@annapolis.gov

The City of Annapolis Integrated Mosquito Management Program...

relies, first and foremost, on the participation and personal responsibility of its citizens to address the mosquito challenge in our water-rich environment. City officials are meeting with community groups to educate and inform. There is, however, no magic solution to this challenge. We must work together as a community, diligently, throughout the breeding season (April through October).

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We have outlined below, ways to reduce your personal risk of being bitten. There are three ways to do this: 1) The Source of the problem (breeding site for larvae); 2) The Pathway (air flight); and 3) the Receptor (you). A barrier at any point will greatly reduce your risk of being bitten.

SOURCE

In most cases, the common denominator is stagnant water. **Eliminate** any and all **stagnant water** on your property or community property and the mosquito eggs will not be able to grow. Killing the adult mosquito will eliminate the next generation. Property inspection must be done on a daily basis, particular after rain.

PATHWAY

Mosquitoes fly. If you keep the air circulating well and moving around you, they will be challenged to alight on you.

RECEPTOR

This is you. Protect yourself by being inside with proper window and door protections; or, if you must be outside, wear proper repellent and clothing and use mosquito netting to reduce your risk.

Please, we need your help. Contact the Department of Public Works to schedule a city official to come and speak to your community or group. Also, report large, unmanageable pools of stagnant water. We may have to use a larvicide. Our telephone number is 410-263-7949. Concerns with individual private-property conditions, please contact the Housing Inspections Group at 410-263-7946.

Prevent Mosquitoes from Entering Your Home

- ! Properly seal all windows and doors
- ! Ensure all open windows and doors have screens
- ! Hang mosquito netting over beds & frequently used doorways
- ! Use yellow-colored "bug lamp" bulbs in exterior lighting fixtures



Prevent Mosquitoes from Biting You

- ! Wear long pants and long-sleeved shirts when possible
- ! Apply mosquito repellent for skin sold as aerosol, cream, solid, liquid; if using a DEET-based product, use no more than 30% per volume for adults & no more than 10% per volume for children; oil of Citronella and other plant extracts are also effective
- ! Apply mosquito repellents containing Premethrin for clothing, shoes, bednets, camping gear, awning, etc. (not effective on skin)
- ! Create positive air flow/breezes in and around your home; windy conditions interrupt mosquito flight
- ! Citronella candles can be effective when windy conditions do not exist
- ! Utilize mechanical devices, such as mosquito traps, lights, and magnets

Reduce Mosquitoes Gathering Areas Around Your Property

- ! Trim lower areas of trees and tall scrubs
- ! Mow lawns/open spaces regularly
- ! Keep weeds cut down, especially around foundations

Eliminate Potential Mosquito Breeding Sites

- ! Clean rain gutters to allow water to flow freely
- ! Remove old tires from property & drill drainage holes in tires used for playground equipment
- ! Store plastic wading pools inside or turn them upside down when not in use
- ! Turn over or remove clay pots and plastic containers that collect water
- ! Dispose of all empty beverage containers, plastic wrappers, discarded toys, etc. - particularly, bottles & cans in your recycling bin
- ! Check for trapped water in plastic or canvas tarps used to cover boats, pools, etc.; arrange the tarp to drain the water

- ! Pump out bilges in boats; turn canoes and small boats upside down for storage
- ! Replace water in bird baths at least twice a week - or remove entirely
- ! Remove pet food and water dishes that are not being used
- ! Do not leave garbage can lids lying upside down; be sure water does not collect in the bottom of garbage cans and recycling bins
- ! Flush water in the bottom of plant holders twice a week
- ! Fix dripping outside water faucets
- ! Turn wheelbarrows upside down
- ! If you are doing an exterior home improvement project, check to ensure that proper backfilling and grading prevent drainage problems
- ! Fill with cement/concrete any water holding areas in tree rot holes, hollow stumps, driveways, patios, walkways
- ! If ditches do not flow and contain stagnant water for one week or longer, they can produce large numbers of mosquitoes; report such conditions to the Department of Public Works at 410-263-7967; do not attempt to clear these ditches because they may be protected by wetland regulations

Websites to Visit

- ! State of Maryland Mosquito Control Info.
www.mda.state.md.us/mosquito/progdesc.html
- ! Maryland Master Gardeners, Charles Co
www.agnr.umd.edu/users/charlesmg/mosquito/insect_menace1.html
- ! American Mosquito Control Association
www.mosquito.org/mosquito.html
- ! National Center for Infectious Diseases
www.cdc.gov/travel/bugs.htm
- ! Mosquito Control Products
www.mosquito-control-products.com
- ! Maryland Department of Agriculture
www.mda.state.md.us/geninfo/genera9.htm
- ! Grow Your Own Herbal Repellent
http://seattlepi.nwsources.com/nwgardens/90412_1_ovejoy10.shtml
- ! Repellent Plant Seeds
<http://www.pet-and-garden.com/plants.htm>